**WHAT IS CLAIMED IS:**

1. A fuel-fired heating appliance comprising:

a combustion chamber;

a burner disposed in said combustion chamber and operative to burn received fuel and combustion air and responsively create hot combustion products in said combustion chamber;

a flue extending from said combustion chamber and operative to receive said hot combustion products, said flue having an outlet;

a draft structure coupled to said flue outlet and including a vent pipe, said draft structure being operative to create a draft through said flue to facilitate discharge of combustion products from said flue outlet and through said vent pipe; and

cutoff apparatus operative to sense a parameter of hot combustion products traversing said draft structure and, in response to a predetermined magnitude of said parameter, prevent both (1) the creation of a predetermined, unacceptably high level of carbon monoxide in said combustion chamber, and (2) thermal damage to said vent pipe caused by an unacceptably high temperature of combustion products traversing said draft structure, by terminating further firing of said heating appliance, said magnitude of said parameter being correlated in a predetermined manner to both the level of carbon monoxide in said combustion chamber and said unacceptably high temperature of combustion products traversing said draft structure.

2. The fuel-fired heating appliance of Claim 1 wherein:

said heating appliance is a fuel-fired water heater.

3. The fuel-fired heating appliance of Claim 2 wherein:

said heating appliance is a natural draft heating appliance.

4. The fuel-fired heating appliance of Claim 2 wherein:

said heating appliance is a power vented heating appliance.

5. The fuel-fired heating appliance of Claim 4 wherein:

said draft structure includes a draft inducer fan operatively interconnected between said flue outlet and said vent pipe, and

said cutoff apparatus includes a thermal switch sensing an internal temperature within said draft inducer fan.

6. The fuel-fired heating appliance of Claim 1 wherein:

said cutoff apparatus is operative to terminate further firing of said heating appliance by preventing further delivery of combustion air to said burner.

7. The fuel-fired heating appliance of Claim 1 wherein:

said cutoff apparatus is operative to terminate further firing of said heating appliance by preventing further delivery of fuel to said burner.

8. The fuel-fired heating appliance of Claim 1 wherein:

said parameter sensed by said cutoff apparatus is temperature.

9. The fuel-fired heating appliance of Claim 8 wherein:

said vent pipe is of a meltable plastic material.

10. A fuel-fired water heater comprising:

a tank adapted to store a quantity of water to be heated;

a combustion chamber positioned beneath said tank;

a fuel burner disposed within said tank and being operative to burn received fuel and combustion air and responsively create hot combustion products in said combustion chamber;

a valve coupled to said burner and through which fuel may be supplied to said burner;

a passage through which combustion air may be supplied to said burner;

a flue extending from said combustion chamber and upwardly through the interior of said tank, said flue having an outlet;

a draft structure coupled to said flue outlet and including a vent pipe, said draft structure being operative to create a draft through said flue to facilitate discharge of combustion products from said flue outlet and through said vent pipe; and

cutoff apparatus operative to sense a parameter of combustion products traversing said draft structure and, in response to a predetermined magnitude of said parameter, prevent the creation of an unacceptably high level of carbon monoxide in said combustion chamber, and thermal damage to said vent pipe caused by an unacceptably high temperature of combustion products traversing said draft structure, by terminating further firing of said water heater, said magnitude of said parameter being correlated in a predetermined manner to both the level of carbon monoxide in said combustion chamber and said unacceptably high temperature of combustion products traversing said draft structure.

11. The fuel-fired water heater of Claim 10 wherein:

said fuel-fired water heater is a natural draft water heater.

12. The fuel-fired water heater of Claim 10 wherein:

said fuel-fired water heater is a power vented water heater.

13. The fuel-fired water heater of Claim 12 wherein:

said draft structure includes a draft inducer fan operatively interconnected between said flue outlet and said vent pipe, and

said cutoff apparatus includes a thermal switch sensing an internal temperature within said draft inducer fan.

14. The fuel-fired water heater of Claim 10 wherein:

said cutoff apparatus is operative to terminate further firing of said water heater by closing said valve.

15. The fuel-fired water heater of Claim 10 wherein:

said combustion air passage has a shutoff damper associated therewith, and said cutoff apparatus is operative to terminate further firing of said water heater by closing said shutoff damper.

16. The fuel-fired water heater of Claim 10 further comprising:

a flame arrestor through which combustion air must pass before entering said combustion chamber for delivery to said burner.

17. The fuel-fired water heater of Claim 10 wherein:

said parameter sensed by said cutoff apparatus is temperature.

18. The fuel-fired water heater of Claim 17 wherein:

said vent pipe is of a meltable plastic material.

19. A fuel-fired water heater comprising:

a tank adapted to store a quantity of water to be heated;

a combustion chamber positioned beneath said tank;

a fuel burner disposed within said tank and being operative to burn received fuel and combustion air and responsively create hot combustion products in said combustion chamber;

a valve coupled to said burner and through which fuel may be supplied to said burner;

a passage through which combustion air may be supplied to said burner;

a flue extending from said combustion chamber and upwardly through the interior of said tank, said flue having an outlet;

a draft structure coupled to said flue outlet and including a vent pipe having a maximum permissible operating temperature, said draft structure being operative to create a draft through said flue to facilitate discharge of combustion products from said flue outlet and through said vent pipe; and

a thermal switch operative to sense the temperature of combustion products internally traversing said draft structure responsively terminate further firing of said water heater when the sensed temperature reaches a predetermined magnitude below said maximum permissible operating temperature and correlated in a predetermined manner to a maximum permissible carbon monoxide level in said combustion chamber.

20. The fuel-fired water heater of Claim 19 wherein:

said water heater is a natural draft water heater.

21. The fuel-fired water heater of Claim 19 wherein:

said water heater is a power vented water heater.

22. The fuel-fired water heater of Claim 21 wherein:

said draft structure includes a draft inducer fan, and

said thermal switch is disposed within said draft inducer fan.

23. The fuel-fired water heater of Claim 19 wherein:

said thermal switch is operative to terminate further firing of said water heater by preventing further delivery of combustion air to said burner.

24. The fuel-fired water heater of Claim 19 wherein:

said thermal switch is operative to terminate further firing of said water heater by preventing further delivery of fuel to said burner.

25. The fuel-fired water heater of Claim 19 further comprising:

a flame arrestor through which combustion air must pass before entering said combustion chamber for delivery to said burner.